

# Visibility Management



United States  
Department of  
Agriculture  
Forest Service  
Air Program

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## Background

**National Visibility Goal:** The Clean Air Act assigns the Forest Service affirmative responsibility to protect Class I area visibility. The Forest Service is required to work with other agencies and states to achieve the National Visibility Goal to prevent and remedy visibility impairment. To this end, the Forest Service performs atmospheric monitoring, modeling, analysis, and maintains close working relationships with stakeholders, especially states. By 2008, each state must have an approved State Implementation Plan to permanently mitigate haze in Class I areas (**Fig 1**) to natural conditions by 2064.

**New Source Review:** A most effective visibility management program is New Source Review. New stationary facilities must not, alone or added to other permitted sources, adversely affect Class I visibility. A

Federal Land Managers' Guide (FLAG), estimates visibility effects from proposed sources.

**Regional Planning Organizations:** Each state belongs to one of five (**Fig 2**) Regional Planning Organizations that, with the US Environmental Protection Agency, develop strategies for reaching the 2064 National Visibility Goal. Industry, advocacy groups and Federal Land Managers are also Regional Planning Organization members. Regional Planning Organizations assemble 2002 baseline emission inventories and project successive year inventories from 2018 to 2064. Air quality and visibility are then dynamically modeled.

## Successes

**Monitoring:** New Source Review and Regional Planning Organizations necessitate continuous monitoring of Class I area visibility. IMPROVE-

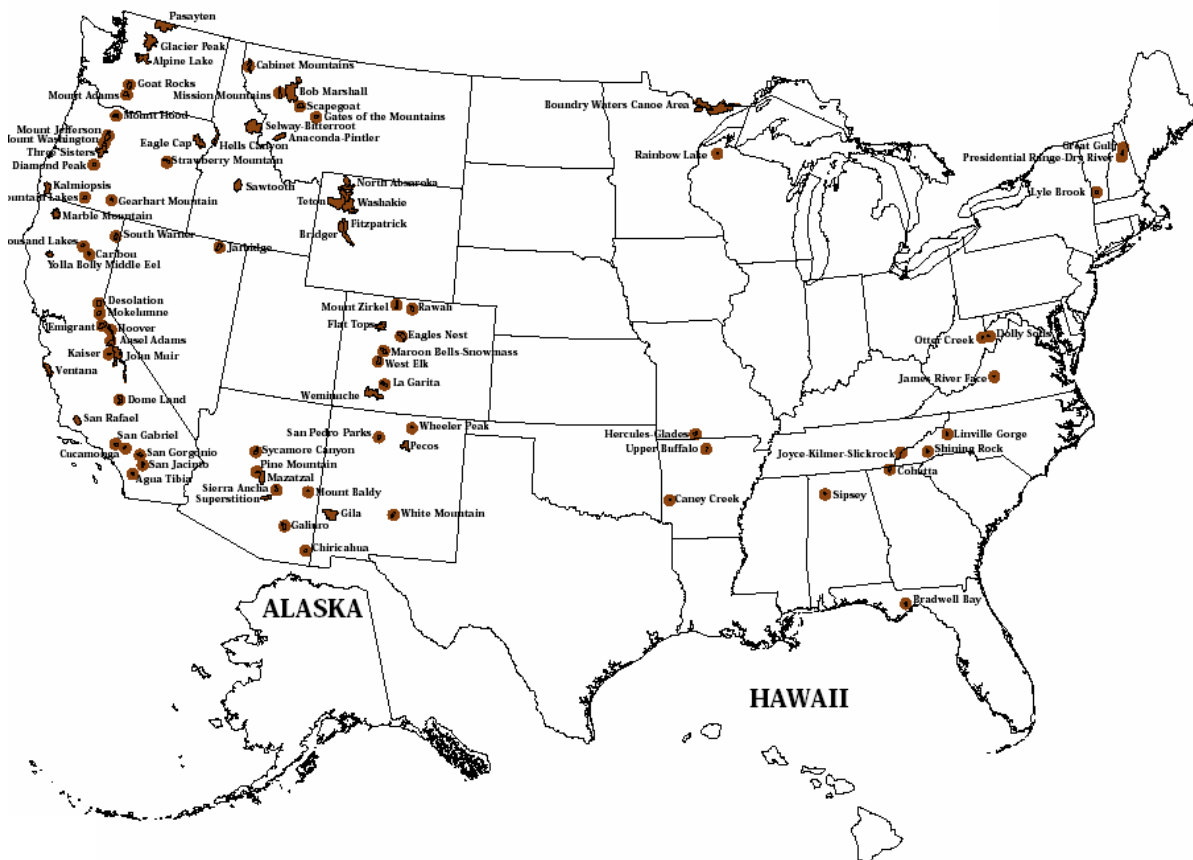
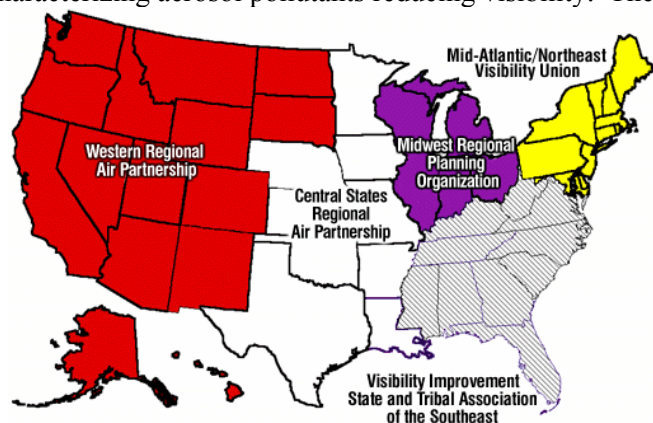


Fig 1. Forest Service Class I Wilderness Areas.

Interagency Monitoring of Protected Visual Environments (IMPROVE) (Fig 3) is the cornerstone for characterizing aerosol pollutants reducing visibility. The



**Fig 2.** Regional Planning Organizations are state air and federal land management agencies, industry and advocacy groups working together to develop strategies for reaching a natural background visibility condition in all Class I areas by 2064.

US Environmental Protection Agency funds aerosol sampling and analyses at Forest Service-operated sites; Forest Service-funded optical devices corroborate aerosol measurements. Cameras capture visibility conditions from important vistas near 80 Forest Service managed Class I areas.

**Forest Fire Smoke Management:** Smoke from wildfires and Native American activities is an historic part of the American landscape. Now, some fires can be “managed” (Fig 4) to reduce smoke production to reduce impacts to Class I and populated areas. Regulators and land managers agree that smoke from planned fires should be managed to minimize visibility impairment and human health threats.



**Fig 3.** The IMPROVE site for Absaroka Wilderness, Wyoming. Each roof stack draws air to one of four filter cassettes. Samples are collected for a 24-hour period every three days.

**Community Collaboration:** Citizens living in and near the wildland-urban interface often use wood fuels for residential heating. The Forest Service and US Environmental Protection Agency are beginning a program with wood stove vendors to encourage low income Americans to trade inefficient wood stoves for high-efficiency, low-emission wood stoves. Benefits include healthier communities, a small but symbolically important improvement in visibility, and easier identification of smoke from wildfires, forest management activities, and commercial sources.

## Challenges

### Strategy for Meeting Visibility Management Obligations in a Constrained Federal Budget:

- One of our high priorities is to continue operating existing IMPROVE aerosol samplers.
- Currently installed optical devices will be evaluated each year for relevance.
- New optical or scene (camera) sites may be installed if a significant change in visual air quality is anticipated or documented.
- Web-based cameras and historic photos inform citizens and decision-makers about visibility impairment. We will install additional cameras where needed and retire the least useful non-web cameras.
- Smoke monitoring and modeling will be used to manage prescribed and wild fires to reduce smoke impacts to Class I areas visibility and other sensitive receptors.
- Additional aerosol samplers will be installed where new air pollution threats emerge.
- Partners will be sought to continue site operation as appropriated funding decreases.



**Fig 4.** The Forest Service operates many portable real-time, web-based smoke monitors to better manage smoke. Monitors are often placed at locations where smoke is likely to affect human health.